Quality	**X6CrMoS17**	**Ferritic Stainless Steel**	*Technical card 2018*
Number	**1.4105**		*Lucefin Group*

Chemical composition

C% max	Si% max	Mn% max	P% max	S%	Cr%	Mo%	
0,08	1,50	1,50	0,040	0,15-0,35	16,0-18,0	0,20-0,60	EN 10088-3: 2014
± 0.01	± 0.10	± 0.04	+ 0.005	± 0.02	± 0.2	+ 0.03	

Product deviations are allowed

Temperature °C

Melting range	**Hot-forming**	**Recrystallization +RA**	**Soft annealing +A**
1500-1490	1150-815	790-710 cooling to 300, then air	850-750 air
Isothermal annealing +I	**Quenching +Q**	**Tempering +T**	**Annealing** for magnetic properties
not suitable	not suitable	not suitable	825-805 protectet atmosphere cooling 50-100 °C/h to 400, then air

MMA **welding –** AWS electrodes

pre-heating *annealing after w.*

difficult; address qualified electrodes producers

joint with steel

carbon	CrMo alloyed	stainless
E309	E309	E309 – E308

cosmetic welding

E309

Chemical treatment ▪ *Pickling* (15 - 25% HNO_3) + (1 – 8% HF) hot or cold

Mechanical properties

Heat-treated material EN 10088-3: 2014 in conditions 1C, 1E, 1D, 1X, 1G, 2D

size		Testing at room temperature					
mm		**R**	**Rp** 0.2	**A**%	**Kv₂** +20 °C	**HBW** a)	a) for information only
from	to	N/mm²	N/mm² min	min	J min	max	
	100	430-630	250	20	-	200	+A annealed material

Bright bars of heat-treated material EN 10088-3: 2014 in conditions 2H, 2B, 2G, 2P

size		Testing at room temperature					
mm		**R**	**HBW**	**R**	**Rp** 0.2	**A**%	**Kv₂** +20 °C
from	to	N/mm² max	max	N/mm²	N/mm² min	min	J min
	10 b)	-	-	530-780	330	7	-
10	16	-	-	500-780	310	7	-
16	40	-	-	430-730	250	12	-
40	63	-	-	430-730	250	12	-
63	100	-	-	430-630	250	20	-
				+A materiale ricotto			

b) in the range of 1 mm ≤ d < 5 mm, values are valid only for rounds – the mechanical properties of non round bars of < 5 mm of thickness have to be agreed at the time of request and order

Forged

size		Testing at room temperature					
mm		**R**	**Rp** 0.2	**A**%	**Kv** +20 °C	**HB** a)	
from	to	N/mm²	N/mm² min	min	J min	max	
		-	-	-	-	200	+A annealed material

a) for information only

Effect of **cold-working** (hot-rolled +RA+C). Approximate values

R	N/mm²	570	620	690	710	740	780	800	840	880	920
Rp 0.2	N/mm²	280	510	590	620	650	690	730	760	800	850
A	%	20	10	9	9	8	8	8	8	8	8
Reduction	**%**	**0**	**10**	**20**	**30**	**40**	**50**	**60**	**70**	**75**	**80**

Minimum values at high temperatures EN 10088-3: 2014

Rp 0.2	N/mm²	230	220	215	210	205	200	195	+A annealed material
Test at	**°C**	**100**	**150**	**200**	**250**	**300**	**350**	**400**	

X6CrMoS17 **n° 1.4105** ferritic steel *Lucefin Group*

Thermal expansion	$10^{-6} \cdot K^{-1}$ ►	10.0	10.5	10.5	10.5	12.0	12.6	
Modulus of elasticity	longitudinal GPa	220	215	210	205	195		
Poisson number	*v*	0.27-0,30 ~						
Electrical resistivity	$\Omega \cdot mm^2/m$	0.70						
Electrical conductivity	Siemens•m/mm²	1.43						
Specific heat	J/(Kg•K)	460						
Density	Kg/dm^3	7.70						
Thermal conductivity	W/(m•K)	25						
Relative magnetic permeability	μr	640 [1]						
°C		**20**	**100**	**200**	**300**	**400**	**600**	**800**

The symbol ► indicates temperature between 20 °C and 100 °C, 20 °C and 200 °C .....

[1] max 1800 for full annealed material

Corrosion resistance	Atmospheric		Chemical			**x** steam, food and dairy food, organic products, nitric acid
Fresh water	*industrial*	*marine*	*medium*	*oxidizing*	*reducing*	
x	**x**		**x**			

Magnetic	yes
Machinability	high
Hardening	cold-drawn and other cold plastic deformations
Service temperature in air	continuous service up to 810 °C; intermittent service up to 860 °C

Europe EN	**USA** UNS	**USA** ASTM	**China** GB	**Russia** GOST	**Japan** JIS	**India** IS	**Republic of Korea** KS
X6CrMoS17	43020	**430F**					

Mechanical properties behavior at high temperatures (approximate values on cold-drawn material).